

**Notice of Allowability**

Application No.

10/769,107

Examiner

Khanh B. Duong

Applicant(s)

LEE ET AL.

Art Unit

2822

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on September 5, 2006.
2. ☒ The allowed claim(s) is/are 1-8 and 22-32.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date this paper.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **DETAILED ACTION**

#### ***Response to Amendment***

This Office Action is in response to the amendment filed on September 5, 2006.

Accordingly, claims 9-13 were canceled, claims 1 was amended, and new claims 22-32 were added. Claims 14-21 were previously canceled.

Currently, claims 1-8 and 22-32 are pending.

#### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Daniel W. Roberts on November 16, 2006.

The application has been amended as follows:

#### **In the claims:**

Claim 1: line 4, after "the electrode", delete "device"; and line 5, after "junction", please insert --device--.

#### ***Allowable Subject Matter***

Claims 1-8 and 22-32 are allowed.

The following is an examiner's statement of reasons for allowance: none of the prior art of record, taken alone or in combination, fairly shows or suggests all the limitations as claimed.

Re claim 1, none of the prior art of record discloses the following limitations in combination with the rest of the limitations in the claim: forming a high resistivity region that extends inward of the surface by exposing the portion of the surface to a plasma process selected from the group consisting of a plasma oxidation process, a plasma nitridation process, and a plasma carburization process, the high resistivity region including a second resistivity that is higher than the first resistivity; and removing the plasma mask from the surface of the electrode to expose a homogenous electrode having a region of high resistivity adjacent to at least one region of first resistivity.

Re claim 25, none of the prior art of record discloses the following limitations in combination with the rest of the limitations in the claim: forming a high resistivity region that extends inward of the surface by exposing the portion of the surface to a plasma process selected from the group consisting of a plasma oxidation process, a plasma nitridation process, and a plasma carburization process, the high resistivity region including a second resistivity that is higher than the first resistivity; and removing the plasma mask from the surface of the electrode to expose a homogeneous electrode having disposed therein a plurality of regions of high resistivity interspersed between regions of first resistivity.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

*Conclusion*

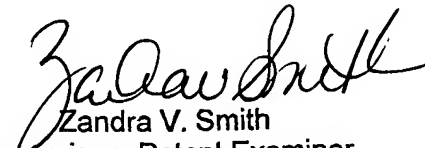
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Adelerhof '777 and Gill '458 disclose methods of forming a magnetic tunnel junction device. However, none of the cited references, taken alone or in combination, fairly shows or suggests all the process limitations as recited in the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh B. Duong whose telephone number is (571) 272-1836. The examiner can normally be reached on 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith, can be reached on (571) 272-2429. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
KBD

  
Zandra V. Smith  
Supervisory Patent Examiner  
27 NW. 2006